

Chronostratigraphic age: Frasnian–Famennian.

Biostratigraphy: Ammonoid zones (*acuticostata* and *piriformis Clymenia* zones; upper *paradoxa* and *prorsum Woeklumeria* zones); upper *hassi* to *praesulcata* conodont zones.

Thickness: > 100 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Cellon Limestone (conformable contact), Freikofel Limestone (conformable contact), Hohe Trieb Formation (unconformable contact), Valentin Limestone (unconformable contact).

Overlying unit(s): Kronhof Limestone (conformable contact).

Lateral unit(s): Kellergrat Reef Limestone, Kollinkofel Limestone, Hohe Trieb Formation, Valentin Limestone, Zollner Formation.

Geographic distribution: Carnic Alps.

Remarks: -

Complementary references: FRECH (1894b, 1902), GAERTNER (1927, 1931), PÖLSLER (1967, 1969a, b), LANGER (1969), SCHÖNLAUB (1969b, 1985a, b, 1999), VAI (1971, 1998), BANDEL & BECKER (1975), PERRI & SPALLETTA (1981, 1991, 1998c, d, e, f), KREUTZER (1990), DREESEN (1992), FEIST (1992), KORN (1992, 1999), RANTITSCH (1992a), SCHÖNLAUB et al. (1992, 2004), JOACHIMSKI et al. (1994), PERRI et al. (1998), SPALLETTA & PERRI (1998b, 1998d), SPALLETTA et al. (1998a, b), SCHÖNLAUB & HISTON (1999, 2000), SCHÖNLAUB & KORN (1999), KAISER et al. (2006), VENTURINI (2006), BRIME et al. (2008).

Marinelli-Kalk / Marinelli Limestone

THOMAS J. SUTTNER

Validity: Invalid; name was introduced by KREUTZER (1992a: p. 271); included within the summary of the Variscan carbonate sequences in the Carnic Alps (KREUTZER, 1992b).

Type area: ÖK50-UTM, map sheets 3109 Oberdrauburg, 3110 Kötschach-Mauthen, 3116 Sonnenalpe Naßfeld (ÖK50-BMN, map sheet 197 Kötschach (Italian side)).

Type section: -

Reference section(s): Southern slope of Kellerspitzen east of Rifugio Giovanni e Olinto Marinelli (KREUTZER, 1992b).

Derivation of name: After Rifugio Giovanni e Olinto Marinelli (KREUTZER, 1992a: p. 271).

Synonyms: -

Lithology: Indistinctly bedded loferites and crinoidal debris limestone (KREUTZER, 1992b).

Fossils: Calcareous algae, conodonts, echinoderms, gastropods.

Origin, facies: Marine limestone, neritic unit (Southern Shallow-water Facies).

Chronostratigraphic age: Uppermost Frasnian–Tournaisian.

Biostratigraphy: -

Thickness: 10–20 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Kellergrat Reef Limestone (conformable contact).

Overlying unit(s): Plotta Lydite (unconformable contact); Kronhof Limestone (KREUTZER, 1992a: p. 271).

Lateral unit(s): Kollinkofel Limestone.

Geographic distribution: Carnic Alps.

Remarks: -

Complementary references: SCHÖNLAUB & HISTON (2000), HUBMANN et al. (2003), SCHÖNLAUB et al. (2004).

Kollinkofel-Kalk / Kollinkofel Limestone

THOMAS J. SUTTNER

Validity: Invalid; known since FRECH (1887); facies described by KREUTZER (1990); name was introduced by KREUTZER (1992a: p. 271); included within the summary of the Variscan carbonate sequences in the Carnic Alps (KREUTZER, 1992b).

Type area: ÖK50-UTM, map sheets 3109 Oberdrauburg, 3110 Kötschach-Mauthen, 3116 Sonnenalpe Naßfeld (ÖK50-BMN, map sheet 197 Kötschach).

Type section: -

Reference section(s): North-eastern mountain cliffs and southern wall of the Kollinkofel (KREUTZER, 1992a), N 46°36'26" / E 12°54'19".

Derivation of name: After Mount Kollinkofel (KREUTZER, 1992a: p. 271).

Synonyms: Unteres Oberdevon am Kollinkofel (FRECH, 1887: p. 700); dunkle Rhynchonellenkalke (KREUTZER, 1992a).

Lithology: Dark brachiopod-rich limestone (rhynchonellids) with sparry lithoclastic layers (KREUTZER, 1992b: p. 32).

Fossils: Brachiopods, conodonts, echinoderms.

Origin, facies: Marine limestone, neritic unit (Southern Shallow-water Facies).

Chronostratigraphic age: Uppermost Frasnian–Famennian.

Biostratigraphy: *gigas* to *postera* conodont zones (KREUTZER, 1990, 1992a).

Thickness: > 40 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Kellergrat Reef Limestone (conformable contact).

Overlying unit(s): -

Lateral unit(s): Marinelli Limestone, Pal Limestone.

Geographic distribution: Carnic Alps.

Remarks: -

Complementary references: VAI (1998), SCHÖNLAUB & HISTON (2000), SCHÖNLAUB et al. (2004).

Kronhof-Kalk / Kronhof Limestone

THOMAS J. SUTTNER, ERIKA KIDO

Validity: Invalid; first described by SCHÖNLAUB (1969b, 1985a); mapped by KREUTZER & SCHÖNLAUB (1984); includ-

ed within the summary of the Variscan carbonate sequences in the Carnic Alps by KREUTZER (1992b); additional biostratigraphic data provided by SCHÖNLAUB & KREUTZER (1993).

Type area: ÖK50-UTM, map sheets 3109 Oberdrauburg, 3110 Kötschach-Mauthen, 3116 Sonnenalpe Naßfeld, 3117 Nötsch im Gailtal (ÖK50-BMN, map sheets 197 Kötschach, 198 Weißbriach, 199 Hermagor).

Type section: -

Reference section(s): Kronhofgraben section south-east of the village of Würmlach (KREUTZER, 1992a: p. 270), N 46°39'19" / E 13°00'57"; Grüne Schneid (Cresta Verde), Plan di Zermula, Creta di Rio Secco, Rio Chianaletta (SCHÖNLAUB et al., 1991; PERRI & SPALLETTA, 1998a).

Derivation of name: After the Kronhofgraben south of Lower Bischofalm and northwest of Mount Hoher Trieb (SCHÖNLAUB, 1969b).

Synonyms: Kronhofkalk (KREUTZER & SCHÖNLAUB, 1984); calcari pelagici (VENTURINI, 2006).

Lithology: Grey to reddish flaser limestone, black shale at the base ("Kronhof Shale").

Fossils: Cephalopods, conodonts, trilobites.

Origin, facies: Marine limestone, pelagic unit (Pelagic Carbonate Facies).

Chronostratigraphic age: Tournaisian.

Biostratigraphy: *gattendorfia* and *merocanites* ammonoid zones; *sulcata* to *isosticha* conodont zones and *anchoralis* conodont zone (SCHÖNLAUB & KREUTZER, 1993).

Thickness: Up to 10 m (+ 0.2 m Kronhof Shale at the base of the unit).

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Pal Limestone (conformable contact); Marinelli Limestone (KREUTZER, 1992a: p. 271); in the Cima di Plotta section the Kronhof Limestone disconformably overlies the Spinotti Limestone (SCHÖNLAUB & KREUTZER, 1993: Fig. 5).

Overlying unit(s): Hochwipfel Formation (unconformable contact); Dimon Formation (unconformable contact).

Lateral unit(s): Plotta Lydite, Zollner Formation.

Geographic distribution: Carnic Alps.

Remarks: -

Complementary references: GAERTNER (1931), GEDIK (1974), KREUTZER (1990), DREESEN (1992), FEIST (1992), KORN (1992, 1999), KRAINER (1992), SCHÖNLAUB et al. (1992, 2004), SCHÖNLAUB (1997), VAI (1998), VENTURINI & SPALLETTA (1998), SCHÖNLAUB & HISTON (1999, 2000), KAISER et al. (2006), SCHÖNLAUB & FORKE (2007).

Plotta-Lydite / Plotta Lydite

THOMAS J. SUTTNER

Validity: Invalid; name "Plotta Fm." introduced and described by SCHÖNLAUB et al. (1991).

Type area: ÖK50-UTM, map sheets 3109 Oberdrauburg, 3110 Kötschach-Mauthen, 3116 Sonnenalpe Naßfeld (ÖK50-BMN, map sheet 198 Weißbriach).

Type section: -

Reference section(s): North and south-east of Cima di Plotta (SCHÖNLAUB & KREUTZER, 1993), N 46°35'24" / E 12°54'30"; surroundings of Rifugio Marinelli and Casera Promosio, Grüne Schneid, quarry "Cava Val di Collina" (N 46°35'34" / E 12°56'27"), abandoned quarry at Casa Cantoniera, quarries "Cava di Marmo", abandoned quarry Malpasso (SCHÖNLAUB et al., 1991).

Derivation of name: After Cima di Plotta (SCHÖNLAUB et al., 1991).

Synonyms: Lydite (SCHÖNLAUB, 1980b); Plotta Fm. (SCHÖNLAUB et al., 1991); radiolarian cherts (VENTURINI & SPALLETTA, 1998).

Lithology: Discontinuous silcrete layers consisting of weakly bedded breccias or massive and laminated cherts (SCHÖNLAUB et al., 1991).

Fossils: Radiolarians?

Origin, facies: Silcrete regolith, fossil soil facies (SCHÖNLAUB et al., 1991).

Chronostratigraphic age: Tournaisian.

Biostratigraphy: The above mentioned age was concluded by SCHÖNLAUB et al. (1991: p. 97) based on a mixed conodont fauna (*anchoralis-latus* Zone) from the uppermost limestone bed disconformably overlain by the Plotta Lydite.

Thickness: Approx. 3 m

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Feldkogel Limestone (unconformable contact); Gamskofel Limestone (unconformable contact); Marinelli Limestone (unconformable contact); Kronhof Limestone (unconformable contact).

Overlying unit(s): Hochwipfel Formation (unconformable contact).

Lateral unit(s): Kronhof Limestone.

Geographic distribution: Carnic Alps.

Remarks: -

Complementary references: KRAINER (1992), SCHÖNLAUB et al. (1992, 2004), SCHÖNLAUB (1997), VAI (1998), SCHÖNLAUB & HISTON (1999, 2000), VENTURINI (2006).

Hochwipfel-Formation / Hochwipfel Formation

THOMAS J. SUTTNER

Validity: Valid; stratigraphic relations discussed by KAHLER & METZ (1955), described in detail by VAN AMEROM et al. (1984), SCHÖNLAUB (1985a), SPALLETTA & VENTURINI (1988), VENTURINI & SPALLETTA (1998), VENTURINI (2006), validated by KREUTZER (1992a).

Type area: ÖK50-UTM, map sheets 3109 Oberdrauburg, 3110 Kötschach-Mauthen, 3116 Sonnenalpe Naßfeld, 3117 Nötsch im Gailtal, 3118 Arnoldstein, 4114 Bad Eisenkappel (ÖK50-BMN, map sheets 196 Obertilliach, 197 Kötschach, 198 Weissbriach, 199 Hermagor, 200 Arnoldstein, 201 Villach, 210 Aßling, 212 Vellach, 213 Bad Eisenkappel).

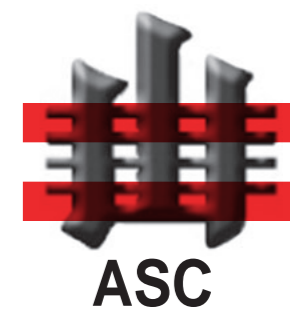
Type section: Mount Hochwipfel of the eastern Carnic Alps (KREUTZER, 1992a: p. 270), N 46°35'40" / E 13°10'35".

Reference section(s): Obere Wolayeralm, Kronhoftörl, east of the Obere Bischofalm, Nölblinggraben, Hoher Trieb,

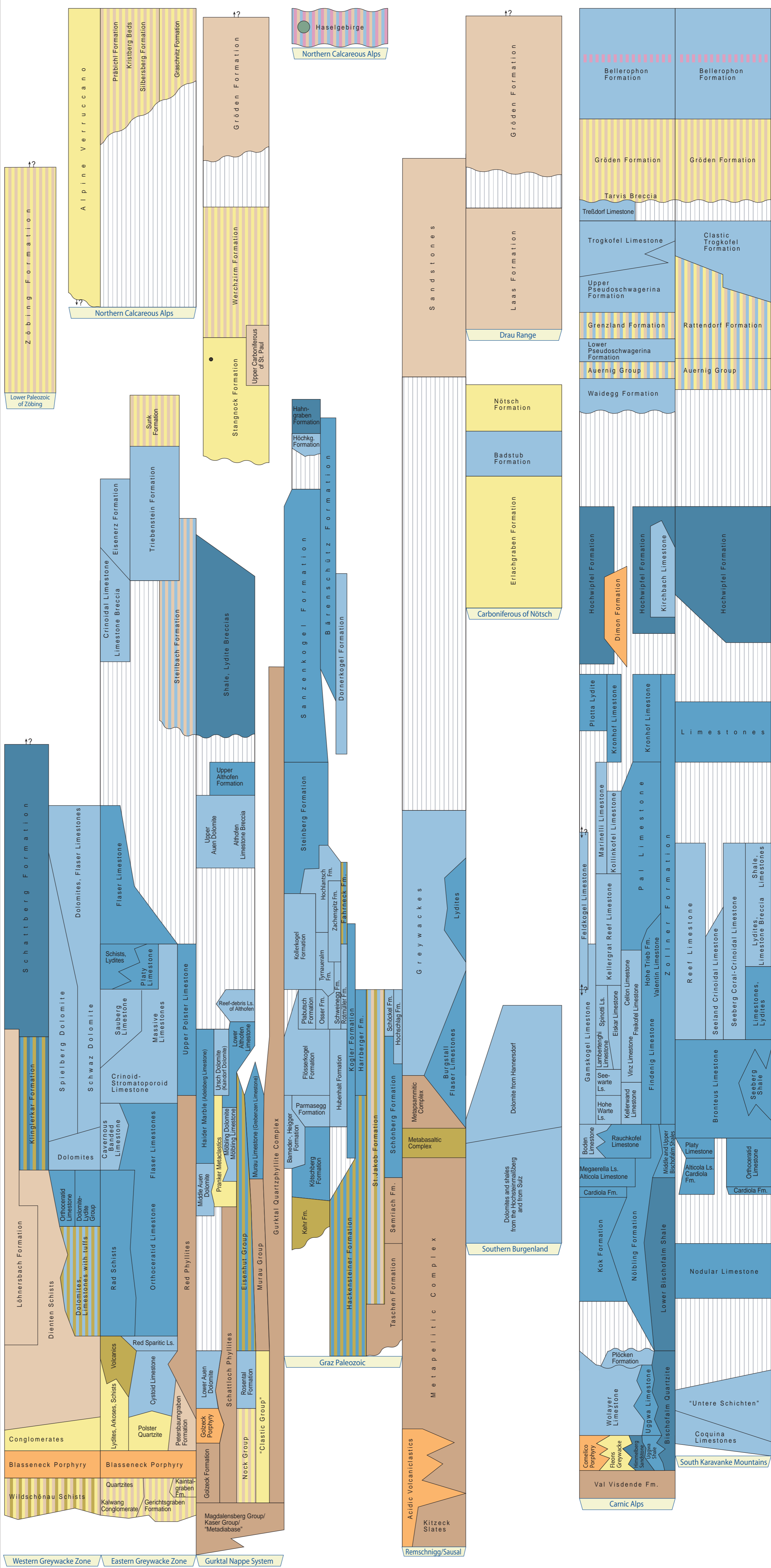
Austrian Stratigraphic Chart 2004 - Paleozoic

(sedimentary successions)

Austrian Stratigraphic Commission



ERA	SYSTEM / PERIOD / SERIES / EPOCH	STAGE / AGE	DURATION Ma	Global Classification					
				ERATHM / ERA	SYSTEM / PERIOD / SERIES / EPOCH				
PALEOZOIC	PERMIAN	CHANGHSINGIAN / Dorashanian	251	PERMIAN	MID PERMIAN / GUADALUPIAN / LOPINGIAN				
		WUCHIAPINGIAN / Dzhulfian	255						
		CAPITANIAN	260						
		WORDIAN	265						
		ROADIAN	270						
		PERMIAN	LOWER PERMIAN / CISURALIAN			KUNGURIAN	275		
						ARTINSKIAN	280		
						SAKMARIAN	285		
						ASSELIAN	290		
		PERMIAN	TRIAS			GZHELIAN	295	TRIAS	U. CARBONIFEROUS / PENNSYLVANIAN
KASIMOVIAN	300								
MOSKOVIAN	305								
BASHKIRIAN	310								
TRIAS	LOWER CARBONIFEROUS / MISSISSIPPIAN			SERPUKHOVIAN	315				
				VISEAN	320				
				TOURNAISIAN	325				
PERMIAN	DEVONIAN			FAMENNIAN	350	DEVONIAN	UPPER DEVONIAN		
				FRASNIAN	355				
				GIVETIAN	360				
		EIFELIAN	365						
		DEVONIAN	LOWER DEVONIAN	EMSIAN	370				
				LOCHKOVIAN	375				
		PERMIAN	DEVONIAN	LUDFORDIAN / GORSTIAN	380			DEVONIAN	MIDDLE DEVONIAN
				HOMERIAN / SHEINWOOD	385				
				TELYCHIAN	390				
				AERONIAN	395				
RHUDDANIAN	400								
DEVONIAN	LOWER DEVONIAN			PRAGIAN	405				
				LOCHKOVIAN	410				
PERMIAN	DEVONIAN			WEN-LOCK / LOW	415	DEVONIAN	LOWER DEVONIAN		
				HIRNANTIAN	420				
				LLANDOVERY	425				
		AERONIAN	430						
		RHUDDANIAN	435						
		DEVONIAN	LOWER DEVONIAN	PRAGIAN	440				
				LOCHKOVIAN	445				
		PERMIAN	DEVONIAN	WEN-LOCK / LOW	450			DEVONIAN	UPPER ORDOVICIAN
				LLANDOVERY	455				
				AERONIAN	460				
RHUDDANIAN	465								
DEVONIAN	LOWER DEVONIAN			PRAGIAN	470				
				LOCHKOVIAN	475				
PERMIAN	DEVONIAN			WEN-LOCK / LOW	480	DEVONIAN	MIDDLE ORDOVICIAN		
				LLANDOVERY	485				
				AERONIAN	490				
				RHUDDANIAN	495				
		DEVONIAN	LOWER DEVONIAN	PRAGIAN	500				
				LOCHKOVIAN	505				
		PERMIAN	DEVONIAN	WEN-LOCK / LOW	510			DEVONIAN	LOWER ORDOVICIAN
				LLANDOVERY	515				
				AERONIAN	520				
				RHUDDANIAN	525				
DEVONIAN	LOWER DEVONIAN			PRAGIAN	530				
				LOCHKOVIAN	535				
PERMIAN	DEVONIAN			WEN-LOCK / LOW	540	DEVONIAN	UPPER CAMBRIAN		
				LLANDOVERY	545				
				AERONIAN	550				
				RHUDDANIAN	555				
		DEVONIAN	LOWER DEVONIAN	PRAGIAN	560				
				LOCHKOVIAN	565				
		PERMIAN	DEVONIAN	WEN-LOCK / LOW	570			DEVONIAN	MIDDLE CAMBRIAN
				LLANDOVERY	575				
				AERONIAN	580				
				RHUDDANIAN	585				
DEVONIAN	LOWER DEVONIAN			PRAGIAN	590				
				LOCHKOVIAN	595				
PERMIAN	DEVONIAN			WEN-LOCK / LOW	600	DEVONIAN	LOWER CAMBRIAN		
				LLANDOVERY	605				
				AERONIAN	610				
				RHUDDANIAN	615				
		DEVONIAN	LOWER DEVONIAN	PRAGIAN	620				
				LOCHKOVIAN	625				



- Legend**
- pelagic, offshore, siliciclastic
 - pelagic, nearshore, calcareous
 - shallow marin, neritic
 - terrestrial-continental, coarse clastic
 - terrestrial-continental, fine clastic
 - evaporite (chloride, sulphate)
 - rhyolite, dacite
 - (basaltic) andesite, trachyandesite
 - basalt
 - phyllite
 - mixed-facies (in corresponding colors)
 - coal (may include several seams)
 - ? position/age doubtful/controversial
 - | equal units
 - \ older unit left \ younger unit right
 - hiatus
 - unconformity
 - GSSP
 - Fm. Formation
 - Ls. Limestone

© Commission for the Paleontological and Stratigraphical Research of Austria (CPSA) of the Austrian Academy of Sciences and Austrian Stratigraphic Commission

Cutout and English adaptation of the "Die Stratigraphische Tabelle von Österreich 2004": Geological Survey of Austria

The Austrian Stratigraphic Chart 2004 - Paleozoic is a supplement of:
 Hubmann, B., Ebner, F., Ferretti, A., Kido, E., Krainer, K., Neubauer, F., Schönlaub, H.-P. & Suttner, T.J. (2014): The Paleozoic Era (them), 2nd edition. - In: Pillner, W.E. (Ed.): The lithostratigraphic units of the Austrian Stratigraphic Chart 2004 (sedimentary successions) - Vol. 1 - Abhandlungen der Geologischen Bundesanstalt, 66, 9-133, Wien.

Printing: Graßl Druck & Neue Medien GmbH, Bad Vöslau 2014